GEOGRAPHIC SCHOOL BULLETINS

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SHADE HATS FOR SUNNY PORTUGAL IN THE MAKING

In a country where women do two-thirds of the work, from stevedoring and plowing to making delicate embroidery and filmy lace, these bareheaded, barefooted little Portuguese girls are beginning early to do their share. Portugal is predominantly an agricultural nation and the range of occupations, other than farming, is limited. These children, starting from scratch by weaving straw braid for hats, appear to be heading for careers as milliners. Little sister stands by, taking in every motion of the deft fingers. It's a serious business for all of them. The light, pliable strips are also made into baskets, bags, and other articles alluring to tourists. Until the day comes when visitors again bring their ready cash to this picturesque and hard-working land, the straw braid can be put to good use at home. It may be fashioned into the tall peaked hats which the women of the fishing villages wear to shade their eyes as they go about their work in the blazing sun of Europe's westernmost land (Bulletin No. 1).

W. Robert Moore

GEOGRAPHIC SCHOOL BULLETIN

HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic School Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers in the United States and its possessions for one year upon receipt of 25 cents (stamps or money order); in Canada, 50 cents. Originally entered as second-class matter January 27, 1922; re-entered as of April 27, 1943, Post Office, Washington, D. C., under Act of March 3, 1879. **Copyright, 1946, by National Geographic Society, Washington 6, D. C. International copyright secured. All rights reserved. Quedan reservados todos los derechos.**

Election Kept Portugal's One-Party Government in Power

PORTUGAL, westernmost nation on the European continent, and neutral through World War II, recently staged its first general election in 20 years. As the result of the November 18 election, described by the party in power as "free as those in England," Antonio de Oliveira Salazar retained the premiership he has held for 14 years.

The government had extended to opposition parties an eleventh-hour invitation to run candidates for the National Assembly. These long-out-of-power citizens were caught unawares. As a result, only about 56 per cent of the country's registered voters cast their ballots, and the party in power "won by a landslide."

Alliance with Britain Is the Oldest in Europe

Portugal had been a monarchy for nearly eight centuries when, in 1910, a revolution ended the rule of Manoel II. The once-outstanding maritime nation that shares with Spain the Iberian Peninsula became a republic. But the course of democracy refused to run smoothly. Too many men wanted to be president. In 1926 internal strife was climaxed by a coup which established a military dictatorship. One-party rule has prevailed ever since, over a framework of republicanism.

As the keystone of its foreign policy, Portugal has continued Europe's oldest alliance, a mutual-aid agreement with Great Britain dating from 1373. By it Britain has stood as a barrier to attacks on both homeland and colonial empire of Portugal. By it Portugal followed Britain into World War I. In World War II Portugal maintained a neutrality which it justified as helping Britain by forestalling German seizure of Portuguese wolfram and other war-useful resources.

Portugal proper, about as big as Indiana, has 7,700,000 people—twice the population of the Hoosier State. Three-fifths of the land is under cultivation. Women and girls do much of the work (illustration, cover). Cork, port wine, and sardines are the chief exports. These are valuable sources of national income because there is little competition from other countries, which produce these articles in very limited quantities.

Lisbon (Lisboa), the capital, derives its name from Olisipo, mythical city of Odysseus. The ancient port was occupied in turn by Romans, Visigoths, and Moors, of whom traces may still be found in the Alfama, the old eastern part of the city and only section not virtually destroyed by an earthquake and a tidal wave in 1755. A striking landmark of this district is the Castello de São Jorge, Moorish citadel topping a rocky hill, in modern times used as a military post and barracks. There are several 12th and 13th century churches.

When Portugal's navigators extended the empire to the East in the 15th and 16th centuries, Lisbon, as their home port, reached great heights of riches and glory. From Lisbon in 1588 sailed the Spanish Armada.

Lisbon Was Europe's Last Neutral Atlantic Port

Looking much like the Mediterranean cities just around the corner, Lisbon rises in tiers of white houses, with luxuriant parks and gardens, from the broad estuary of the Tagus River. Straight streets and wide tree-lined boulevards, laid out after the eathquake of 1755, give the section of the city west and north of the Alfama a bright, modern appearance (illustration, next page).

Before World War II, Lisbon's population had reached the 700,000 mark. The city had become a great air transportation center and crossroads of inter-

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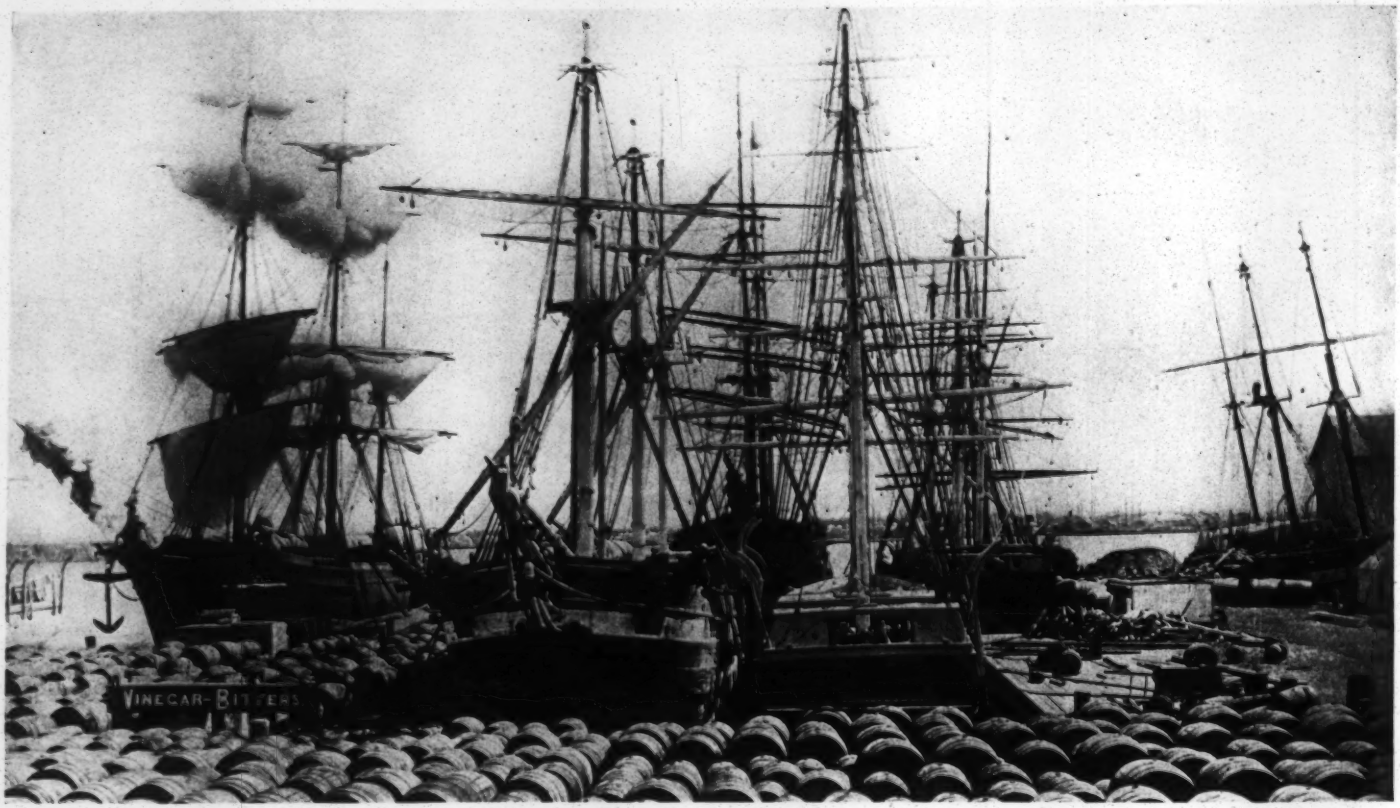

Captain George T. Plummer

AN INSTANT OF NEW BEDFORD'S PAST GLORY LIVES FOREVER IN THIS HISTORIC PHOTOGRAPH OF THE WHALING PORT'S HEYDAY

Tied to the Massachusetts city's docks (in 1860) are whaling ships perhaps just returned from voyages of two or three years. American whalers, ranging far and wide over the Pacific, discovered many islands (among them the Bonins) and contributed greatly to geographic knowledge. Casks on the dock contain whale oil (Bulletin No. 4).

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Alma Ata, Climate-Blessed Soviet City, Fronts China Border

ALMA Ata, the Soviet Union's frontier city in central Asia, gained fame during the war as a supply hub for materiel flowing not only toward Russia's fronts but also eastward to ally China. It is an important rail and industrial center and capital of the Soviet Socialist Republic of Kazakh. The city heads a vast republic slightly more than one-third the size of the United States. One thousand miles west lie the Ural Mountains; the western edge of China (Sinkiang) is only 150 miles to the east.

Alma Ata is situated on a fertile plain at the base of towering, fir-covered spurs of the Tien Shan (Heavenly Mountains), whose peaks in winter are blanketed with snow and ice. In the summer months when tumbling mountain streams flow less rapidly, and when adjoining regions become parched, the 250,000 or more inhabitants of Alma Ata find their city cool and delightful, shaded by its avenues of tall poplars. The suburbs have hundreds of acres in apple orchards; the name of the city in the Kazakh language means "father of apples."

City Played Important Role in Soviet War Effort

The Kazakhs do not need "an apple a day to keep the doctor away," for this southern part of the republic has a bracing and dry climate comparable to Colorado or Arizona. As in Salt Lake City, mountain water flows through streets with wide gutters and gives the city a clean bill of health. The same water flows on to irrigate near-by orchards and vineyards.

Alma Ata, with its many movie studios, sometimes has been called the "Hollywood of central Asia." The city proudly disclaims any such glamorous role. In the Soviet Union's hour of trial, it geared itself for war and turned out great quantities of munitions and supplies which were shipped west to the battle fronts. Many of the recruits of the Soviet air force were trained in the republic. From its steppes came the famous Kazakh horses used by Soviet cavalry, and the highly regarded Kazakh cavalry units.

When the Turk-Sib (Turkestan-Siberian) branch of the Trans-Siberian Railway was finished in the early 1930's, connecting Alma Ata with Novosibirsk, the Kazakh capital rapidly developed as an industrial center. It took a further big jump in importance after the invasion of the Ukraine when it was necessary to find new producing centers away from war-torn areas. During the war it was the railhead from which Allied supplies to China started out on the long caravan route through Sinkiang.

In the Zone of Millionaire Collectives and Earthquakes

Alma Ata became the distribution center of her own vast territory as well as that of the adjoining republics. From the huge farms to the north, wheat, rye, and cattle are shipped. Through the city flow the products of a well-planned agricultural program: cotton, rice, and sugar beets. Important minerals such as copper, lead, and zinc are processed in Alma Ata; a large proportion of the Soviet's supply is mined in this territory. Surface coal mines of Karaganda, northwest of Alma Ata, helped feed the Soviet war machine after the Germans captured the Donets Basin. Alma Ata also turns out cloth, boots, shoes, flour, and canned goods.

In the country surrounding the capital are numerous collective farms and vineyards producing so much in agricultural crops that the republic has often been

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national missions because it is the nearest continental European capital to the United States. The outbreak of war gave it even greater importance as the last of the continent's great neutral Atlantic seaports, jumping-off place for refugees, port of entry and exit for diplomats, and rendezvous for confidential agents, adventurers, and conspirators in general. In 1944 the U. S. legation was made an embassy.

Oporto, Portugal's second city, lies on the Atlantic coast, 170 miles north of Lisbon, at the mouth of the Douro. Because a sandbar almost closes the river mouth, a harbor was built at Leixões, three miles northwest. In Oporto's old harbor small boats of ancient Phoencian design unload cargoes. Oxen, more maneuverable than trucks in narrow streets, cart the goods away from the docks.

In the city's commercial and residential districts spacious squares and wide avenues have replaced dark alleys and cobblestone streets. The old town is picturesque, with balconied houses, fountains surrounded by flagstone courts, and bright gardens. Oporto has a cathedral dating from the 12th century, a college, museums, numerous convents and villas—many bearing marks of Roman invasion.

Portugal's colonial empire, shrunk from its heyday by the loss of Brazil (now a republic in its own right) and Oriental areas, is still 26 times larger than the homeland. By far the biggest parcels are Angola and Mozambique, in Africa. The Azores and Madeira, Portugal's island groups in the Atlantic, are regarded as an integral part of the republic.

Note: Portugal is shown on the National Geographic Society's Map of Central Europe and the Mediterranean. A price list of maps may be obtained from the Society's headquarters, Washington 6, D. C.

See also, "Lisbon—Gateway to Warring Europe," in the *National Geographic Magazine* for August, 1941; and "Castles and Progress in Portugal," February, 1938*; and, in the GEOGRAPHIC SCHOOL BULLETINS, January 4, 1943, "Portugal Offers Many Products Used by U. S. in War and Peace." *(Issues marked with an asterisk are included in a special list of Magazines available to teachers in packets of ten for $1.00.)*

Bulletin No. 1, January 14, 1946.

Harvey Klemmer

SHE USES HER HEAD TO SAVE HER HANDS, RATHER THAN HER FEET

These two *varinas* (fishwives) have a small but attentive audience as they pause in their chores to exchange a bit of animated conversation. A doughnut-shaped pad forms a foundation for their baskets. Dressed in gay colored garments—dotted, striped, or plaid—the *varinas* pick up their stock of fish at the wharves where the boats unload, and peddle them, fresh from the nets, through Lisbon's narrow, crowded streets.

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Problem Areas of Europe: 2. The Trieste Region

(This is the second of a series of 9 articles about European trouble spots.)

TRIESTE, Fiume, and the rocky peninsula of Istria, rising between them at the head of the Adriatic Sea, have in modern times been bones of contention gnawed at by four countries. Italy and Yugoslavia, today's claimants to the area, were preceded before World War I by Austria and Hungary. Internationalization of Trieste would give all countries free access to that important port.

The two ruling members of the polyglot Austro-Hungarian Empire did not squabble over the prize. As the central European powers of the day, they simply divided it—Austria took Trieste, Hungary took Fiume.

Today Trieste, with a prewar population of nearly 250,000, is by far the larger. Italian-style houses spread over a wide amphitheater of hills rising back of the modern harbor. Windows are flanked by thick shutters which citizens have learned to close and keep closed in time of trouble. Business and public buildings show an Austrian influence, but retain the flat façades and roofs generally seen in Mediterranean countries.

Yugoslavs Expressed Dissatisfaction at Division of Istria

Large steamers dock in an ample harbor naturally protected by a fortunate drift of currents from the silting that eventually clogs most north Adriatic ports. Man-made moles and breakwaters help shelter the harbor from the *bora*, fierce northeast wind. The Grand Canal, leading from the waterfront, brings fishing boats and other small craft into the heart of the city.

Treaties following World War I took all non-Germanic lands from Austria, and all non-Magyar territories from Hungary. By 1924, Italy controlled the vital Adriatic-coast area now claimed by Marshal Tito. Yugoslavia, a "baby" country born of the First World War, never stopped reminding the world that the settlement of the Istrian area was not to its liking.

Arrowhead-shaped Istria (see map, next page) is the keystone in the arch of the north Adriatic. It is a thorn in the sides of whichever Adriatic nations do not control it. Its naval base at Pola, developed by Austria and used by Germany's allies in two world wars, is a major factor in the command of the Adriatic arm of the Mediterranean. Its two flanking ports are the best trade outlets in the north and east reaches of the Adriatic.

The area north of Istria is equally important in land communication and defense, and is also disputed. Italy calls Istria and the narrow frontier strip north of it Venezia Giulia—the Giulia a reminder of the region's historic name, the Julian March.

This borderland along the Julian Alps has been since the first century B.C. a meeting ground of Mediterranean and continental peoples. There the Slavic and Western worlds overlap. Through the Julian passes, the lowest in the entire mountain chain of armor that girds north Italy, came the barbarian hordes that overran Rome—Huns, Ostrogoths, Visigoths, Avars, and Lombards. Through these passes much later came Austrian might.

A mountain pass leads both ways and Rome was the first organized power to push through and seize the Julian March. To secure his northeast frontier, Emperor Augustus conquered Istria and colonized it by founding Trieste (Tergeste) in 35-34 B.C. Rome's policy then carried her over the saddle of low mountains into the Danube watershed.

Austrians Gave the City the Fourth Version of Its Name

Ancestors of the present-day Yugoslavs are believed to have migrated into the Julian March in the eighth century. They called Tergeste "Trst," tilled the soil, and generally made themselves at home. They have been there ever since, still constituting the bulk of the population.

Many Italians remained in Trieste or were attracted there for commercial reasons. The city played second fiddle to near-by Venice for centuries. To escape the dominance of the doges (rulers of Venice), the Triestinos in 1382 asked Austria for protection. From then until 1918, except for two short periods when Napoleon gave Italy a taste of Trieste, Austria feasted alone on this morsel of land. Austrians called it "Triest," giving the name a fourth spelling and pronunciation.

The disputed area (roughly the department of Venezia Giulia east of the Isonzo River) had a prewar population of less than 1,000,000, more than one-fourth of which lived in Trieste. Fiume, Pola, and Gorizia had over 50,000 residents each. The cities are largely Italian, Trieste about 85 per cent so by most estimates. Fiume, however, counting the suburb of

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referred to as the "zone of millionaire collectives." Alma Ata has been well provided with universities, technical colleges, and schools. The city has numerous theaters and also supports a philharmonic society.

In fact, Alma Ata's fortunate location and resources have led some to describe it as a "dream city." One condition is unfortunate—the city is in an earthquake zone. To guard against possible future disaster, foundations of buildings and roads have been specially reinforced.

Owen Lattimore

HIS RED ARMY BROTHERS CHASED GERMANS

The tsars considered the freedom-loving, hard-riding, fierce-fighting Kazakhs too unruly to recruit, but entire tribal cavalry divisions fought Nazis in World War II.

The population of the Kazakh S. S. R. is largely Kazakh, originally cattle-breeders of Turkic origin. In the early 18th century the Kazakhs were wandering tribes who fought among themselves and against the incoming Russians.

Camel caravans plodded through sandy desert wastes; horsemen dashed over the steppes (illustration, left). At this time the Kazakhs were more at home in the saddle than in their tents. The vast natural treasure of their lands lay dormant.

Although the fighting Kazakhs had been incorporated into Russia by the end of the 19th century, lack of national unity and especially lack of roads retarded development of the region. Then came the national awakening, followed by the modern period of industrialization. Now Alma Ata, whose population has increased greatly in the last 15 years, has become a highly important rail and air terminal, with prospects for an even greater expansion in the postwar period.

Northwest of Alma Ata, 265 miles, is the Kounrad copper-mining area, developed within the last 20 years, called by the Russians their Anaconda. The mines are situated near Ozero (lake) Balkhash.

Note: Alma Ata may be located on the Society's Map of the Union of Soviet Socialist Republics.

See also, "New Road to Asia," in the *National Geographic Magazine*, December, 1944.

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Whales, Given Reprieve by the War, Face New Slaughter

EXCITED cries of "Thar she blows!" recently rallied men to harpoons and boats for the first full-time whaling season in six years. England has sponsored an Antarctic whaling expedition, hoping the catch will provide whale fat (blubber), margarine, liver oil, and meat for depleted British larders. Norway, traditional whaling power, also has ships in the field.

On November 24, the British ships sailed for South Georgia Island off stormy Cape Horn. By international agreement all whalers are pledged to observe regulations governing the hunting season, and the number, length, and kind of whale to be caught. Such restrictions are necessary because whales for many years were slaughtered without protective measures and threatened with extinction. However, fishing experts are reported to believe that, during the six years when whales were not hunted wholesale, they multiplied enormously.

These Denizens of the Deep Dwarf Dinosaurs

Records indicate that Basques on the shores of the Bay of Biscay—about 1575—were among the earliest whalers. From that time until the advent of the steel ship and harpoon gun, whaling was one of the most dangerous, romantic, and adventurous of occupations. Ships would leave the shores of Europe or America, to return three or four years later with a precious cargo of whale oil and a new supply of hair-raising stories.

Stories have persisted of whales upsetting ships. Whales are the largest animals known, either living or extinct. Even the prehistoric dinosaurs could not compete with whales in size. The blue whale, largest of all, reaches a length of 108 feet and a weight of 115 tons. Ten men could stand abreast in its mouth, but the throat is only nine inches in diameter. Because of this small opening, blue whales are limited to a diet of small crustaceans such as shrimp. As much as six barrelfuls are eaten at one meal.

Whales can be divided roughly into two classes—baleen and toothed. The baleen type (including the blue whale) is that from which the "whalebone" is obtained. This substance, not actually bone, is suspended from the roof of the whale's mouth, forming a fringe through which food is strained from the sea (illustration, next page). Best known of the toothed variety is the sperm whale, whose teeth may weigh as much as four pounds each.

Sperm whales suffering from inflammation of the alimentary tract have deposits of oil in their heads and intestines. This oil, known as ambergris, is used as a base for costly perfumes. Other products made from whales are margarine, soap, candles, corset stays, glycerine, and fertilizer. The meat is edible.

The Whale, Mammal and Not Fish, Breathes Through Lungs

Canned whale meat has been popular for years with Japan's poor. One whale provides as much meat as 125 cattle. Cooked, the meat tastes somewhat like beef, but is not as tender.

The whale is a mammal, suckling its young and breathing through lungs rather than gills. The lungs account for "spouting"—the act of exhaling or blowing upward a column of warm air when the whale comes to the surface to breathe. A whale can stay under water for fifteen or twenty minutes at a time, but the inevitable spout betrays its position to alert hunters.

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Sušak—Yugoslavia's thin slice of the Istrian pie—was almost evenly divided between the contending nationalities.

Underground Drainage Makes Karst Dry and Barren

The ratio of Slavs to Italians in the disputed area as a whole is about two to one. Rural sections, except for a fringe along the western shore of Istria and the Monfalcone corner, are almost totally Slovene or Croat. In area, the entire region equals the states of Rhode Island and Delaware combined.

The Karst (Italian Carso), a desolate plateau of porous limestone outcroppings, covers large sections of the interior. Underground drainage and many sinkholes make the Karst surface extremely dry. It supports little natural vegetation, and cultivation is virtually impossible. In pockets and in non-Karst lands, small farms produce garden crops, grapes, olives, and grain. Coal, zinc, bauxite, and mercury are mined.

The Karst upland hugs the Dalmatian and Croatian coast, forming a barrier between interior Yugoslavia and its long Adriatic shore line. Fiume, most accessible port of this littoral, sits on a narrow coastal shelf with room to expand only along the waterfront.

The railroad from Belgrade (Beograd) loses altitude by means of a circular tunnel cut in the mountainside. This railroad first reaches Sušak, Yugoslavia's prewar portion of Fiume, crosses a small stream marking the international boundary, and enters Fiume proper. Between the world wars Sušak's trade increased, while that of Fiume and Trieste dropped greatly because political boundaries were drawn across the interior regions that had supported them economically.

The region's importance is more strategic than economic. Italy's leading ports and industrial cities are situated elsewhere. Yugoslavia's need for good ports prompts its demands for the area. Foremost economic prize of the land itself is the mercury mines at Idria in the Julian Alps. These mines provided about half of the world's prewar supply.

Gorizia an Inland Mart

Caporetto, scene of a bitter defeat suffered by Italian forces in World War I, is located in this frontier territory on the Isonzo River between Tolmino and Plezzo.

Gorizia is Venezia Giulia's largest inland town. It normally is a center of trade for the countryside's orchard and farm products. Before the war it was a manufacturing town with emphasis on silk spinning and wine making.

Venezia Giulia, plus the adjoining Udine district to the west, are the only prewar Italian areas still in Allied military control.

Note: Trieste and the surrounding region are shown on the Society's Map of Europe and the Near East.

For additional information on this disputed Adriatic region, see "Italy, from Roman Ruins to Radio," in the *National Geographic Magazine* for March, 1940*.

See also, "Old Adriatic Battlefronts See New Battles," in the GEOGRAPHIC SCHOOL BULLETINS, January 10, 1944.

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Geo-Graphic Brevities

ILE D'YEU, PETAIN'S ELBA, IS A BAY OF BISCAY STORM TARGET

GRANITE-CORED, windswept Ile d'Yeu, the new prison of Marshal Pétain, lies in the Bay of Biscay 10 miles off shore, somewhat north of the midpoint of France's west coast. France's aged prisoner of state previously had been confined in bleak Portalet fortress in the Pyrenees Mountains.

About six miles long on a northwest-southeast axis, and some two miles wide at its widest, the island had a prewar population approaching 4,000. It is a ready-made sea marker for eastbound and northbound ships heading for the mouth of the Loire River, 40 miles to the northeast, and the river ports and industrial centers of St. Nazaire and Nantes. The highest ground, about 115 feet, is the northwestern end where the coast rises steeply from the bay.

Situated in the path of cyclonic storms generated far out in the Atlantic Ocean, the Island of Yeu records much windy weather. High winds blow southward from Brittany and the British Isles. Southwesterly to northwesterly gales lash the water of the Bay of Biscay to dangerous roughness, and churn up breakers that fringe shore lines with a broad belt of spray-capped combers.

The average annual temperature in this sea area is about 61 degrees Fahrenheit. Coastal readings in the vicinity show that the temperature falls to a February average of 42 degrees, and rises to an average of 67 degrees in August. Rain falls half the days of the year. A wet period begins in October and lasts until spring. Some snow appears in the winter months.

Port Joinville, once known as Port Breton, on the island's northern coast, is the only sizable community. Its name was changed in 1846 to honor Admiral Prince de Joinville, third son of Louis Philippe, King of France from 1830 to 1848.

Fishing is the chief occupation of the islanders. Fishing craft and coasting-trade vessels ordinarily use the port's tidal harbor, a haven protected by two breakwaters. Steamer service linked the port to Fromentine on the mainland, a small seaside resort about 16 rail miles from Nantes.

Place names along the northern coast reflect Celtic influences believed to have been channeled through Brittany. Names more purely French are seen and heard on the south shore. Inhabitants of northern sections *(gens de la Fouras)* differ markedly from those of southern areas *(gens du Creusland)*.

Note: Isle d'Yeu may be located on the Society's Map of Europe and the Near East.

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SEABEES DRILL FOR OIL IN NORTHERNMOST ALASKA

LITTLE-MAPPED wilds of northern Alaska hold "Umiat No. 1," where U. S. Navy Seabees are drilling for oil. The hole they have dug is the nearest well to the North Pole—about 1,400 statute miles away—that has ever been drilled. This project recently came off the Navy's list of secret operations.

Umiat, in terms of latitude and longitude, is at 69 degrees and 23 minutes north, 152 degrees and 5 minutes west—200 miles north of the Arctic Circle. Not heretofore marked on even the most detailed maps of Alaska, it is situated on the Colville, chief river of northern Alaska, about 115 winding miles upstream (south) from the river's delta mouth on Harrison Bay of the Arctic Ocean.

Sub-zero cold enforces a five-month winter holiday on actual drilling operations. The bleak site is about 170 air miles southeast of Point Barrow (illus-

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The old method of killing whales was dangerous for the men and agonizing for their quarry. Approaching the whale in small boats, hunters harpooned it until it was dead. Now a harpoon is shot from a small cannon mounted on the ship's bow. Several seconds after lodging in the whale's flesh, a bomb attached to the harpoon explodes and death is almost instantaneous.

Whales are either brought to a shore station or are processed at sea on completely equipped factory ships. After they are drawn aboard or onto the wharf, whales resemble the hulls of long-sunk ships; their skin is covered with barnacles and other marine organisms. Blubber is stripped off, chopped, and boiled for oil. Offal and bones are ground for fertilizer.

During the war, the United States put to work two Norwegian whaling vessels which had escaped the Germans. They contributed sperm oil, used for lubricating delicate marine and airplane mechanisms, to the war effort. These two vessels have now been returned to Norway.

The United States whaling fleet, now practically nonexistent, was once the largest in the world. In the 1840's over 700 whaling ships from New England were plying the Seven Seas. New Bedford, Massachusetts, foremost whaling city (illustration, inside cover) was the fourth-largest port in the country. The saga of the men who manned America's whalers has been told in Herman Melville's *Moby Dick*.

Note: For further information, see "Discovering Alaska's Oldest Arctic Town," in the *National Geographic Magazine* for September, 1942*; and "Whales, Giants of the Sea," January, 1940*.

Bulletin No. 4, January 14, 1946.

Morris D. Miller

WITH THE FRINGE ON THE TOP JAW, WHALES STRAIN FOOD FROM THE SEA

The bushy growth hangs from a horny substance called whalebone, once the most prized part of the whale. In the 19th century it was cut into strips and used for corset stays. The whale uses it as a "soup-strainer"; he takes huge mouthfuls of the sea, closes his jaws, brings his gigantic tongue up between the fringes, forces the water out, and swallows the trapped food. This Humpback, part of the prewar catch, lies on the deck of the U. S. factory ship *Frango*.

tration, below), Alaska's northernmost projection into the Arctic Ocean, and 350 air miles northward from Fairbanks, to which point a pipeline will eventually be laid if the field produces sizable quantities of oil.

The Colville River, named for a Hudson's Bay Company president, is shallow and skirted by marshlands at Umiat, near which it is joined by its tiny Prince Creek tributary. Geologic maps show adjoining low bluffs of stratified shale and sandstone with sub-bituminous coal in frequent layers one to three feet thick. Northern foothills of Alaska's great Brooks Range of mountains are visible to the south.

Alaska oil was known to the Russians before the United States bought the territory in 1867 for $7,200,000—two cents an acre. In the northern reaches, oil seepages were discovered at Cape Simpson, east of Point Barrow, in 1909, and at Wainwright Inlet, west of Point Barrow, 1915. They led in 1923 to the setting up of an area the size of Maine as "Naval Petroleum Reserve No. 4." Rumors of high-grade inland oil pools persisted, started erroneously in some cases by the sight of films of iron oxide on pools of stagnant water. Exploration failed to reveal worthwhile amounts of petroleum.

The Umiat drilling is in the southeast corner of Naval Petroleum Reserve No. 4. Authorized in June, 1944, actual drilling got under way a year later and has engaged several hundred men. If geologists' hopes are realized in this first deep-drilling test in the area, oil will be struck at about double the present 1,800-foot depth.

Note: The Society's Map of North America shows the area of Alaska's oil fields. See also, "Today's World Turns on Oil," in the *National Geographic Magazine* for June, 1941.

Bulletin No. 5, January 14, 1946.

U. S. Army Signal Corps

BLEAK BARROW IS THE NORTHERNMOST TOWN IN UNITED STATES TERRITORY

Clinging to the Alaskan tundra at the edge of the Arctic Ocean, nine miles southwest of Point Barrow, this settlement of 30-odd buildings boasts trading stores, a church, a school, id a Signal Corps radio station. On the coast 12 miles southwest of this village, Will Rogers and Wiley Post crashed to their deaths in 1935. Seabees now drill for oil in the interior about 170 miles to the southeast.